

Michigan Department of Agriculture and Rural Development:
Agricultural Preservation Fund

Graham Sustainability Scholars Program 2021-2022

Team 3: Farmland Preservation

Braeden Fromwiller, Kelsie Imus, Hershy Jalluri, and Jessie Williams



Executive Summary

Team members Jessie Williams, Hershy Jalluri, Kelsie Imus, and Braeden Fromwiller worked with the Michigan Department of Agriculture and Rural Development (MDARD) to assist with MDARD's Agricultural Preservation Fund program. This program is meant to protect farmland in the state of Michigan from further retail and commercial development. This project focused on three topics relating to understanding conservation easements and land value, evaluating sales on agricultural land, and soil quality along with threat of development. Using data provided by the client through MDARD's record-keeping from the program's inception in 2000, the team members analyzed real estate trends in conservation easement-adjacent properties, found trends in the sale of agricultural land, and determined which land should be prioritized for conservation easements based on soil quality and other factors. It was determined that MDARD should focus their easement campaign on areas with generally high efficiency rates, located in underrepresented and inexpensive but high productivity farmland areas. Continuing to highlight the economic benefits along with targeting these areas will be beneficial to the program. Similarly, expanding the easement program in counties that do not have historically high levels of involvement will help diversify the land portfolio that is held in easements. These areas have high productivity land, and considering the continual trend of increasing land values, these areas will only continue to become more valuable. Lastly, focusing on areas that have high soil productivity in various regions throughout the state, as well as areas that are under development threat will help expand the easement program.

Introduction and Background

The Michigan Department of Agriculture & Rural Development (MDARD) is a 100-year old department of the State of Michigan government that focuses on the food and agricultural sector of Michigan. Our focus area with MDARD is their Agricultural Preservation Fund, which employs conservation easements to preserve farmland. This process incentivizes preservation at a time when development is highly lucrative, and farmers often receive high dollar-value offers from land developers for their property. The farmland preservation program provides economic flexibility, perpetual protection of the environment, potential tax deductions, and easy passage of lands to heirs without large estate taxes (MDARD).

Our project with MDARD focuses on three topics: understanding conservation easements and land value, evaluating sales on agricultural land, and soil quality. Topic 1 examines the land value trends in parcels neighboring conservation easements as well as the pricing efficiency of MDARD's current purchasing patterns. Topic 2 researches statewide sales on agricultural land, finding data and trends on past and current market trends, and understanding which of these trends are going to continue in the next few years. Topic 3 researches soil quality, microclimates, and the distribution of threatened land around Michigan.

Methods and Data

Topic 1 — Conservation Easements and Land Values

One parcel under conservation easement per county with available data was randomly selected, leading to a total of 28 counties. We used the software platform "Regrid" to find adjacent parcels. These parcels were then cross-referenced with the list provided by MDARD to ensure they were also not under a conservation easement. Using BS&A Online, appraised values

were compared over the last three years. In order to compare purchasing efficiency across counties with varying numbers of conservation easements, data from “AcreValue” on average cropland acre cost and National Commodity Crop Productivity Index (NCCPI) was employed.

Topic 2 — Sales on Agricultural Land

We conducted a literature review of statewide sales on agricultural land, finding data and trends on past and current market trends, in order to understand which of these trends would be most likely to continue in the next few years. We have started and continue to examine the data to take away meaningful trends — for instance, what regions have seen the most sales activity, and if there were specific and repeated periods of time where sales fluctuated. This data helps us better understand the agricultural land buying and selling space.

Topic 3 — Soil Productivity and Threatened Land

The US Department of Agriculture provided the data for developing a list of counties ranked based on the percentage of land that is farmland in that county (USDA) (Appendix D). This allowed us to form a list of counties with the largest percentages of farmland. The American Farmland Trust’s Farms Under Threat study was also used to determine agriculturally productive lands and highlight areas where development has been occurring (Appendix E). Lastly, various resources were used to investigate Michigan’s microclimates, which produce specific and unique crops, like grapes for wine, or other types of fruit (MSU Geo Project).

Results and Recommendations

Topic 1 — Conservation Easements and Land Values

Analysis of land values of parcels that neighbored parcels under an MDARD conservation easement shows that in 18 out of 26 counties, the sample neighboring parcels did not increase in SEV by more than fifteen percent between the years 2018 and 2020. This shows

that although property values continued to increase, they did so at a reasonable rate. The presence of an MDARD conservation easement nearby did not diminish the land's value, nor did it artificially inflate it. See Appendix A for greater detail.

We recommend that MDARD focuses more on purchasing efficiency and expanding to new counties in which quality cropland is available for a lower cost. Out of MDARD's fifteen most-represented counties, only four were also considered to be in the top fifteen most efficient buys, determined by the ratio of average cost per acre to NCCPI score. Counties such as Sanilac, Saint Clair, and Tuscola, have high efficiency but a maximum of 2 conservation easements (Appendix B and C). However, efficiency of purchase should not be the sole determining factor which topic 2 and 3 highlights. For example, Grand Traverse County has fairly expensive land under high development threat, and therefore should be a preservation priority.

Topic 2 — Sales on Agricultural Land

We find that public interest within farmland purchases will continue to increase due to overall benefits such as personal investment diversification and land interest rates (Successful Farming). There are some factors that may cause land values to decrease including reduced crop yields (which will become more common with climate change in certain areas) and commodity prices. Land values within Michigan are largely dependent on crop variety and yield which is continuing to increase in Michigan yearly (MSU Land Values).

To incentivize individuals towards conservation easements amid rising land prices, MDARD should additionally steer individuals towards other forms of preservation funding. Generally, lower and middle Michigan have the most significant agricultural land value due to overall crop variety and profit. Focusing within these areas would lead to great land preservation based on the overall value of land. Similarly, expanding conservation easement programs outside

of Acme Township, Ann Arbor Charter Township, Ingham County, and Kent County will create a more diverse portfolio of agricultural lands (Farmland Information Center).

Topic 3 — Soil Productivity and Areas to Target

Following Appendix D, MDARD should focus on counties with higher percentages of quality farmland, high productivity soil, and areas with large development threats (AFT). Many of these counties are located in the Southeast, along the thumb, in the central region, the Southwest, and along the West coast of the Lower Peninsula. This trend is seen in Appendix E, which shows expansion of some development around the urban areas in Central and Southeast Michigan, including the Thumb. Similarly, on the west coast of the lower peninsula (Fruit Production), the fruit belt offers a unique growing capability that is also being rapidly developed, especially around the larger cities in Kent, Ottawa, and Grand Traverse counties. MDARD's counties of focus can include Huron, Monroe, Bay, Ottawa, Genesee, Grand Traverse, and Washtenaw. These counties have high proportions of farmland, high local concentrations of productive soils, and generally high concentrations of land that are being developed at a fast rate. However, any county with a high enough percentage of farmland should be targeted.

Anticipated Impact

There have been many recent threats to farmland, including climate change to the pandemic, both of which are impacting how we use land and land value. Counties with historically high efficiency values, and areas with low historical participation in easement programs should be targeted. Similarly, some of these areas are at threat of development while having high productivity values. These recommendations will help MDARD target these types of areas and focus their resources on protecting these areas of land. Getting more farmers educated about their land values, the historical implications of easements, and the future patterns of

productivity and development will lead to more protected land, and specifically, more valuable farmland (in a productivity sense and a development sense) being protected.

Appendices

Appendix A: Sample Land Value Rates of Change by County

CountyName	Rate of change
Missaukee	-0.5428571429
Eaton	-0.1021687226
Gratiot	-0.08064516129
Presque Isle	-0.05603448276
Houghton	-0.01169514932
Cass	0
Cheboygan	0
Branch	0.01821750598
Saint Joseph	0.03741067675
Jackson	0.04921700224
Keweenaw	0.05003330619
Macomb	0.05042016807
Washtenaw	0.06686478455
Allegan	0.06882022472
Shiawassee	0.08333333333
Ingham	0.1304957905
Genesee	0.1462765957
Montcalm	0.1545623836
Leelanau	0.1912087912
Oceana	0.1973392461
Isabella	0.2258064516
Kalkaska	0.2424489796
Saginaw	0.2773943054
Midland	0.2857142857
Emmet	0.3275976175
Clinton	0.3333333333
Grand	
Traverse	0.8347826087
Calhoun	1.012578616

Appendix B: Counties Represented by Number of Conservation Easements

**the fifteen counties with the most MDARD conservation easements are highlighted in red*

	CountyName	Number of Parc			
1	Clinton	52	15	Huron	3
2	Washtenaw	24	15	Macomb	3
3	Kalamazoo	23	16	Genesee	2
4	Lapeer	20	16	Hillsdale	2
5	Lenawee	19	16	Sanilac	2
6	Shiawassee	18	16	Montcalm	2
7	Ingham	15	16	Cheboygan	2
7	Eaton	15	17	Iron	1
7	Branch	15	17	Keweenaw	1
8	Allegan	13	17	Wayne	1
8	Saint Joseph	13	17	Livingston	1
8	Grand Traverse	13	17	Midland	1
9	Leelanau	12	17	Van Buren	1
10	Barry	10	17	Calhoun	1
11	Ottawa	9	17	Gratiot	1
12	Berrien	7	17	Tuscola	1
12	Cass	7	17	Isabella	1
12	Jackson	7	17	Emmet	1
13	Saginaw	6	17	Antrim	1
13	Oceana	6	17	Kalkaska	1
14	Kent	5	17	Missaukee	1
			17	Wexford	1
			17	Houghton	1
			17	Presque Isle	1

Appendix C: Counties Represented by Highest Purchase Efficiency Ratio

**the fifteen counties with the most MDARD conservation easements are highlighted in red. A lower ratio number indicates a county where conservation easements would be a more efficient purchase, with low land cost and high NCCPI score.*

CountyName	Ratio	CountyName	Ratio	CountyName	Ratio
Sanilac	71.1	Saint Joseph	99.48148148	Cass	116.0566038
Saint Clair	80.4516129	Oscoda	100.2	Dickinson	116.8666667
Tuscola	81.10526316	Montmorency	100.2068966	Kalamazoo	121.037037
Shiawassee	83.01666667	Mason	100.6666667	Allegan	123.673913
Saginaw	84.63793103	Manistee	101.6875	Gladwin	125.5151515
Hillsdale	85.47368421	Jackson	102.3846154	Monroe	126.2727273
Gratiot	85.78571429	Clinton	102.7272727	Wexford	126.3793103
Lapeer	89.64705882	Lenawee	102.8596491	Missaukee	127.7333333
Alcona	89.77777778	Presque Isle	103.7142857	Baraga	129.0909091
Branch	91.50909091	Berrien	104.5901639	Otsego	129.6896552
Bay	91.58490566	Midland	105.9615385	Oceana	130
Ionia	91.62962963	Lake	106.8235294	Wayne	133.7916667
Eaton	92.375	Ogemaw	109.21875	Washtenaw	135.3392857
Isabella	93.34693878	Livingston	111	Emmet	136.3125
Genesee	93.44067797	Menominee	111.1428571	Delta	136.9166667
Alpena	95.33333333	Cheboygan	112.5357143	Houghton	138.1363636
Ingham	95.84210526	Clare	112.6285714	Kalkaska	138.8571429
Macomb	97.86666667	Benzie	112.9666667	Kent	140.9333333
Calhoun	98.03773585	Arenac	113.3939394	Marquette	141.7619048
Montcalm	98.57142857	Van Buren	113.787234	Ottawa	152.7727273
Mecosta	98.85365854	Iosco	115.03125	Grand	
Osceola	98.91891892	Barry	115.6304348	Traverse	158.1034483
				Charlevoix	163.3448276
				CountyName	Ratio
				Leelanau	176.5384615
				Antrim	184.3478261

Appendix D:

Table 1: List of Michigan Counties Sorted by Percentage Farmland

County	Percent Farmland
Huron	92.6
Gratiot	81.6
Lenawee	80.4
St. Joseph	76.5
Bay	74.1
Branch	73.9
Sanilac	70.9
Hillsdale	66.4
Tuscola	64.1
Ionia	64.0
Saginaw	63.8
Clinton	63.4
Cass	63.3
Shiawassee	62.0
Monroe	59.7

Isabella	57.8
Eaton	57.1
Montcalm	51.0
Ingham	50.1
Ottawa	47.7
Calhoun	47.3
Barry	43.7
Allegan	43.5
Lapeer	40.1
Berrien	39.8
Washtenaw	39.6
St. Clair	39.5
Van Buren	39.0
Kalamazoo	38.5
Oceana	37.9
Arenac	37.5
Jackson	35.7

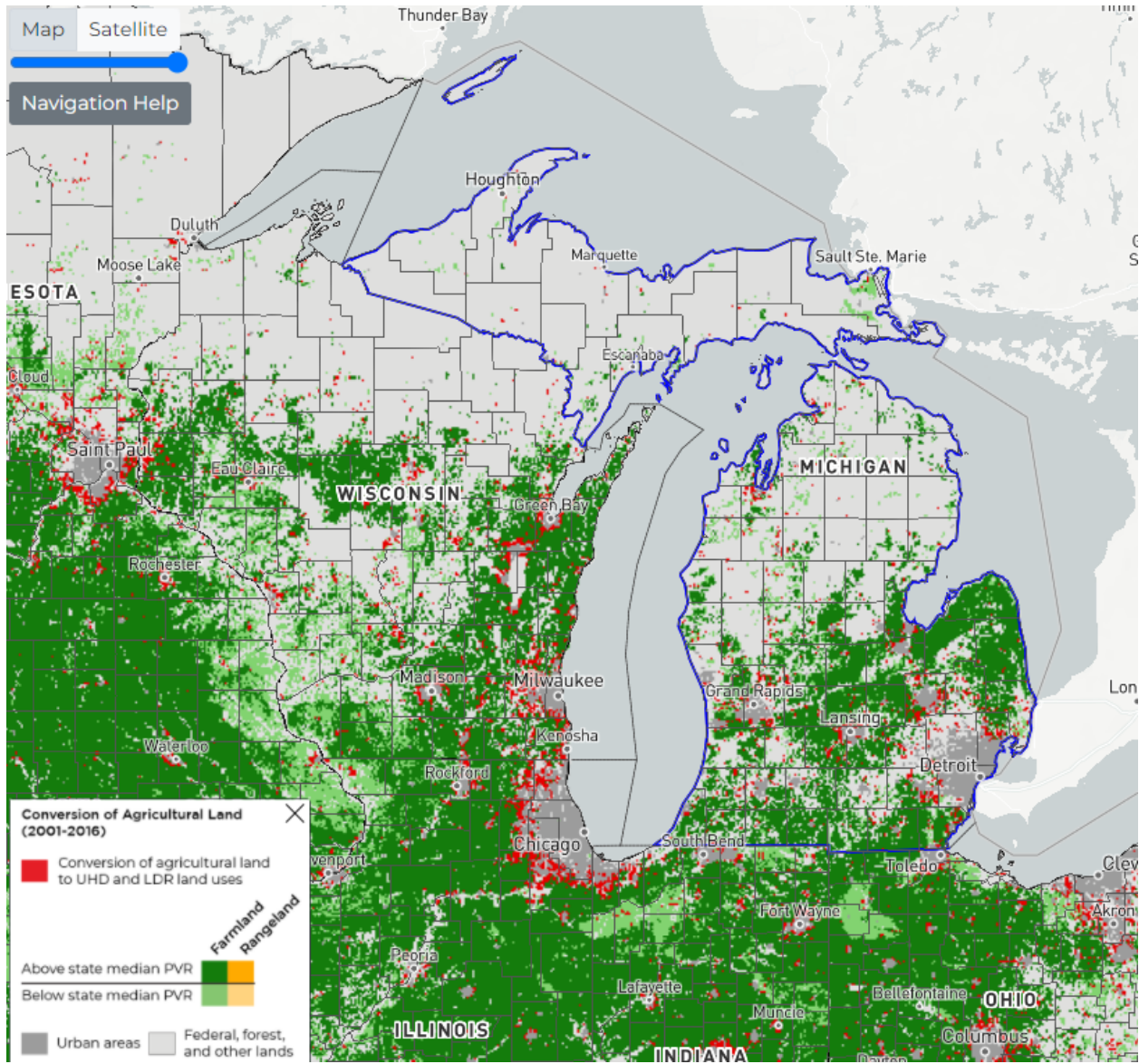
Mecosta	32.4
Missaukee	31.4
Genesee	30.4
Kent	29.0
Osceola	28.6
Mason	27.0
Midland	26.5
Newaygo	26.1
Livingston	24.7
Macomb	24.0
Leelanau	22.5
Muskegon	19.7
Ogemaw	19.4
Antrim	18.3
Gladwin	18.2
Alpena	17.9
Grand Traverse	17.1

Presque Isle	15.3
Clare	15.0
Emmet	13.1
Manistee	11.9
Menominee	11.9
Charlevoix	11.2
Wexford	11.1
Otsego	10.1
Cheboygan	9.6
Iosco	9.6
Benzie	9.0
Chippewa	8.9
Alcona	8.4
Delta	7.8
Kalkaska	7.6
Montmorency	7.5
Lake	6.0

Oakland	5.2
Dickinson	4.5
Oscoda	4.5
Houghton	4.0
Mackinac	3.8
Alger	3.6
Ontonagon	3.2
Baraga	3.1
Iron	3.1
Marquette	2.6
Wayne	2.6
Schoolcraft	2.0
Luce	1.7
Roscommon	1.7
Crawford	0.8
Gogebic	0.8
Keweenaw	0.1

**USDA data was used to sort counties by higher percentage of farmland.*

Appendix E: American Farmland Trust Map



Citations

MDARD. <https://www.michigan.gov/mdard/about>.

MDARD Land Easement Program.

<https://www.michigan.gov/mdard/environment/farmland/conservationdonations/conservation-easement-donations>.

USDA.

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Michigan/

American Farmlands Trust - Farms Under Threat. <https://csp-fut.appspot.com/#how-to-navigate>

MSU Geo Project. https://project.geo.msu.edu/geomich/ag_regions.html

Successful Farming.

<https://www.agriculture.com/news/business/competitive-bidding-pushes-farmland-values-up-15-land-report-shows>

MSU Land Value. <https://www.canr.msu.edu/resources/2021-land-value-leasing-rates>

Farmland Information Center.

https://s30428.pcdn.co/wp-content/uploads/sites/2/2021/02/Local_Purchase_of_Agricultural_Conservation_Easement_Programs_2020_2.21_AFT_FIC.pdf

Bridge Michigan.

<https://www.bridgemi.com/business-watch/farmland-prices-soar-michigan#:~:text=Across%20Huron%2C%20Tuscola%20and%20Griiot,overall%20real%20estate%20values%20climb>